542951

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
16 December 2004 (16.12.2004)

PCT

(10) International Publication Number
WO 2004/108589 A2

(51) International Patent Classification[7]: B82B

(21) International Application Number:
PCT/US2004/001696

(22) International Filing Date: 21 January 2004 (21.01.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/441,743 21 January 2003 (21.01.2003) US

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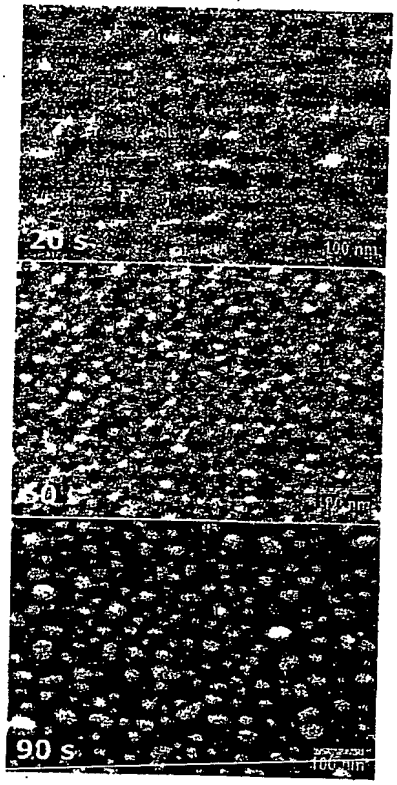
(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH,

[Continued on next page]

(54) Title: NANOPARTICLE COATED NANOSTRUCTURED SURFACES FOR DETECTION, CATALYSIS AND DEVICE APPLICATIONS



(57) Abstract: A non-vacuum-based, non-collodial chemistry-based method of synthesizing metal nanoparticles and nanoparticle-nanostructured material composites obtained by that method. An embodiment of the method of this invention for fabricating a nanoparticle-nanostructured material composite and synthesizing nanoparticles includes preparing a nanostructured/nanotextured material, and, contacting the nanostructured/nanotextured material with a solution. Nanoparticles are synthesized on the nanostructured/nanotextured material as a result of the contact. The method of the present invention can be utilized to fabricate SPR and SERS substrates for sensing and detection. Additional systems based on this approach (e.g., surface plasmon resonance absorption and alloying sensors and nanocatalysts)are described.

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GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *without international search report and to be republished upon receipt of that report*

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